

TEST YOURSELF - CHANGES

This test is to help you find out if you understand what you have been doing. It is not a test for marks.

For most questions, you have to choose the best answer from the several answers suggested. In each of these cases, write only the letter of the answer which you choose. It is important that all your answers are your own work.

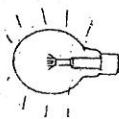
Answer the following questions on pages 10 and 11 of your record book.

Questions 1 to 4

The objects pictured have energy in many different forms. For each question choose from the list below one form of energy which is present in all four objects.

- | | | | | | |
|---|----------|---|------------|---|----------|
| A | Heat | B | Light | C | Sound |
| D | Movement | E | Electrical | F | Chemical |

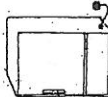
Example



ELECTRIC LIGHT



RADIATOR



REFRIGERATOR



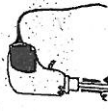
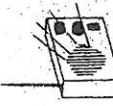
ELECTRIC DRILL

ELECTRICAL ENERGY is one form of energy which is present in all four objects, so an answer for this set is E.

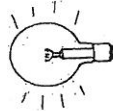
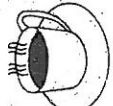
1



2



3



4



Questions 5 to 8

A change of energy from one form to another may be written like this:

ELECTRICAL ENERGY → HEAT ENERGY

Things which can change electrical energy into heat energy are: electric radiators, electric toasters, electric jugs and so on.

For each question below write down two or more things which can change energy in the way shown.

5 ELECTRICAL ENERGY → SOUND ENERGY

6 MOVEMENT ENERGY → SOUND ENERGY

7 CHEMICAL ENERGY → MOVEMENT ENERGY

8 MOVEMENT ENERGY → HEAT ENERGY

Questions 9 to 12

What energy changes are being described in each passage below?

Example For the passage 'The electric jug hummed as it heated up the water' you should write

ELECTRICAL ENERGY → SOUND ENERGY
ELECTRICAL ENERGY → HEAT ENERGY

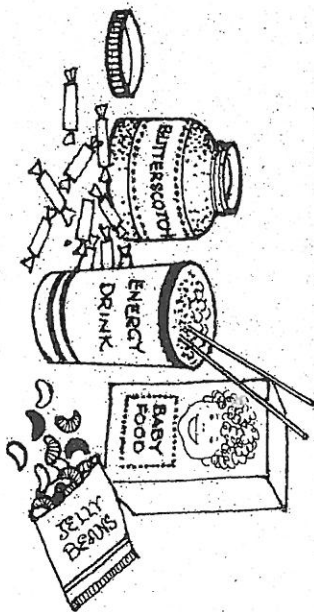
9 Leaves rustled in the breeze.

10 The beam from the torch showed that nothing had been disturbed.

11 Suddenly the engines roared. The cars leapt forward as red hot sparks poured from the exhausts. The race was on.

12 As the spacecraft Mariner IV spins smoothly and silently towards Mars, 28 224 photo-cells catch some of the energy passing through the cold, empty space. These cells provide the energy needed to keep the spacecraft batteries fully charged throughout the mission.

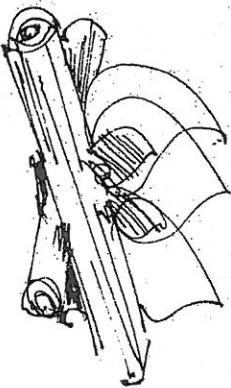
- 13 Which one of the examples below does not involve a change from one form of energy to another?
- A A hydroelectric power station uses running water to generate electricity.
 - B Hot tea poured into a cup makes the cup hot.
 - C The tyres of a moving car become hot if the car stops suddenly.
 - D Oil is burnt to heat a room.
- 14 Food gives humans lots of energy. Into what different forms does the human body convert the chemical energy in food?



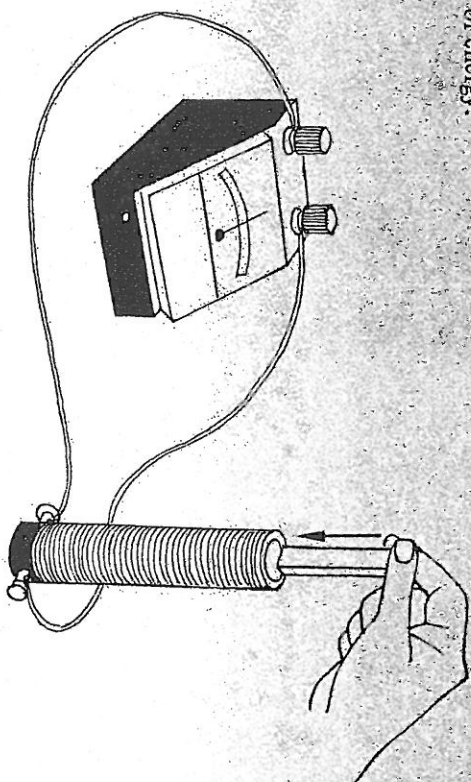
Questions 15 and 16

Imagine a roaring log fire.

- 15 List all the forms of energy that are produced from the chemical energy of the wood as it burns.
- 16 When the fire has gone out, what has happened to all the energy that was released?



- 17 Griselda connected a coil of wire to an instrument that detects small electric currents. When she quickly pushed a magnet in to the coil the instrument showed that an electric current was produced. Describe what happened in terms of energy.



- (You could try this yourself. Check with a teacher.)
- 18 Which of the changes described below involve energy? (You may choose more than one answer.)

- A The tide was out at nine o'clock and now it's in.
- B The baby used to be small but now has grown.
- C This peach was good but now it's rotten.
- D This room was painted brown and now it's white.
- E It was dark an hour ago but now it is almost day.

- 19 Read this conversation between two students.

Martin: When a car has movement energy and you put on the brakes, the car stops. The energy just disappears.

Gary: No. In that case you shouldn't say that the energy just disappears when the car stops. It doesn't disappear. It changes into heat energy in the brakes.

Martin: But there are some times when energy just appears out of nowhere or disappears.

These students were thinking about where energy comes from and where it goes to. Here are four more statements about energy. With which one do you agree most?

- A Energy never changes form but often appears and disappears.
- B Energy often changes in form and it also often appears and disappears.
- C Energy often changes in form, but it doesn't often just appear or disappear.
- D Energy often changes in form, but it never just appears or disappears.